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EXAMINER	
SHUMATE, ANTHONY R	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/537,641	SAUER ET AL.	
	Examiner	Art Unit	
	ANTHONY SHUMATE	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3-6, 8, 9 and 11-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,8,9 and 11-29* is/are rejected.

7)☒ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Amendment filed 15 June 2010 has been entered and fully considered.

2. Claims 1, 3-6, 8, 9 and 11-29 are pending, of which claims 1, 3-6, 8, 9 and 11-26, 28 and 29 were amended.

3. The previous claim objection at sections 4, 5, 6, 7, 8, 9 of the Office Action dated 15 January 2010 is withdrawn in light of Applicant's amendments to the claims.

4. The previous 35 USC 112 rejection at section 11-15 of the Office Action dated 15 January 2010 is withdrawn in light of Applicant's amendments to the claims.

5. If the new matter was removed, then the claims 15-25, 28 and 29 would be rejected under 35 U.S.C. 102 and/or 35 U.S.C. 103(a) with the reference(s) cited throughout prosecution of this case.

Information Disclosure Statement

6. Any foreign language documents submitted by applicant has been considered only to the extent of the short explanation of significance, English abstract or English equivalent, if appropriate.

Claim Objections

7. Claims 3 objected to because of the following informalities:

Claim 3 objected to as having the wrong status identifier. The status of claim 3 should be "Currently Amended."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 8, 9, 13, 14, 15-25, 28 and 29 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 8 has the phrase, "wherein an adhesive is located at an interface between the first and second nonwoven layer," which is not supported by the original disclosure, since claim 1 already has the phrase,"the at least one region is a hot calendered region."

According to the instant specification at page 3 paragraphs 1-4 the hot calendar is an alternative to the adhesive at the at least one region.

Also, according to the instant specification at page 4 paragraphs 6-9 the hot calendar is an alternative to the adhesive.

Also, according to the instant specification at page 10 paragraph 4, "An alternative example is shown in Figure 2. The structure of the composite is the same (bulky meltblown 201, meltblown fleece 202, spunbond layer 203) as in the first example. However, no hotmelt is present. Instead of the hotmelt, the spun- bond 203 was hot calendered" (i.e. the hot calendar is an alternative to the adhesive).

Claims 15 and 22 have the phrase, "the filter paper layer at the first region having reduced air permeability relative to a second region of the filter structure free of the filter paper layer" which is not supported by the original disclosure.

It is noted that Applicant states at page 8, "The claims have been amended to provide articles in accordance with U.S. practice. Claims 1,4, 8, 11, 12, 15 and 22 have also been further amended. Support for the amendments may be found throughout the specification, see, for example, page 2, second paragraph, page 6, third paragraph and FIGS. 2, 3A-4B." Respectively, support for the amendment(s) at claims 15 and 22 have not been found throughout the specification, see, for example, page 2, second paragraph, page 6, third paragraph and FIGS. 2, 3A-4B.

It is noted that page 6 third paragraph of the instant specification states, " The filter paper layer has two functions. On the one hand, it reinforces the filter medium thereby reducing the amount of elongated particles passing through the filter medium in the region of the filter paper

layer. On the other hand, due to the additional paper layer in a specific region, the air permeability of the filter medium in this region is reduced. This means that an airflow meeting the filter medium at this part of its surface is partly deviated. As a consequence, the airflow in this region is reduced and particles entrained with the airflow meet the filter with reduced velocity, in view of this, the filter has a much better retention regarding elongated particles and objects. " Also it is particularly noted that, a portion of page 6 third paragraph of the instant specification which states "due to the additional paper layer in a specific region, the air permeability of the **filter medium** in this region is reduced." (bolding added for emphasis) Thus, page 6 third paragraph of the instant specification does not support the claim amendment.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 8, 9, 13, and 14 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 has the phrase, "wherein an adhesive is located at an interface between the first and second nonwoven layer," after claim 1 already had the

phrase, "the at least one region is a hot calendered region." Claim 8 is indefinite since, it is inconsistent with the specification disclosure. (MPEP 2173.03)

According to the instant specification at page 3 paragraphs 1-4 the hot calendar is an alternative to the adhesive at the at least one region.

Also, according to the instant specification at page 4 paragraphs 6-9 the hot calendar is an alternative to the adhesive.

Also, according to the instant specification at page 10 paragraph 4, "An alternative example is shown in Figure 2. The structure of the composite is the same (bulky meltblown 201, meltblown fleece 202, spunbond layer 203) as in the first example. However, no hotmelt is present. Instead of the hotmelt, the spun- bond 203 was hot calendered" (i.e. the hot calendar is an alternative to the adhesive (hotmelt)).

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 4 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over SCHULTINK (EP 960645A2) as evidenced by WARD (Micro Denier Nonwoven Process and Fabrics), Webster's Third New International Dictionary, and ARNOLD (US 5,707,468).

For instant claims 4 and 5, SCHULTINK teaches at figure 8E a spunbond layer (i.e. nonwoven layer) (filter).

It is the Examiner's position that a spunbond layer inherently has a region and a surface area. For clarity, the Examiner is interpreting the region of the nonwoven layer as a portion of the entirety of the spunbond layer of SCHULTINK. Therefore, the region has a surface area smaller than the filter (i.e. nonwoven layer).

Additionally for instant claims 4 and 5, SCHULTINK teaches at figure 8E wherein the region/spunbond layer has hotmelt (i.e. adhesive). It is the Examiner's position that the hotmelt (i.e. adhesive) inherently causes at least some fibers of the region/spunbond layer to be bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the layer is inhibited.

[For arguendo, SCHULTINK teaches at figure 8E a spunbond layer. Also, it is the Examiner's position that a spunbond layer has fibers being

bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the layers is inhibited (i.e. the region has fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the region is inhibited).]

[Also for arguendo, WARD (Micro Denier Nonwoven Process and Fabrics) provides extrinsic evidence at figure 3 of a 600 times magnification of a spunbond fabric which shows the fibers of the fabric bond together.]

[For clarity, Webster's Third New International Dictionary, Unabridged, 1993 provides extrinsic evidence that bond means a connection or system of connections in which adjacent parts of a structure are made to overlap so as to be tied or bound together, or bond means resistance to slipping (as between the major components of a structure) provided by adhesion or friction.]

[Furthermore for arguendo, ARNOLD (US 5,707,468) provides extrinsic evidence at column 4 lines 49-57 "Spunbond fabrics are generally lightly bonded in some manner immediately as they are produced in order to give them sufficient structural integrity to withstand the rigors of further processing into a finished product. This light, first step bonding may be accomplished through the use of an adhesive applied to

the fibers as a liquid or powder which may be heat activated, or more commonly, by compaction rolls."]

As well for instant claims 4 and 5, SCHULTINK teaches at table IV and figure 4 that a spunbond layer (12). Additionally, the Applicant has stated on the record in the correspondence filed 28 January 2009 page 9 paragraph 2 that it is their position that SCHULTINK is describing parameters of the laminate 6(36+35) at table IV. Therefore based on the position of the Applicant, SCHULTINK teaches at table IV and figure 4 the properties of the laminate 4/(12+11). For that reason, SCHULTINK teaches at table IV and figure 4 the maximum pore diameter for the spunbond layer (12) is 40.25 µm.

It is the Examiner's position that inherently the average for a series of numbers must be less than or equal to the maximum value in that series. Therefore, inherently the average pore size (i.e. which is a result of a series of values of pore size) of the spunbond layer is less than or equal to 40.25 µm. Also, it is the Examiner's position that 40.25 µm is less than 50 µm.

Inherently for SCHULTINK, the spunbond material of table IV and figure 4 is the spunbond material of figure 8E; therefore the spunbond material of figure 8E has a maximum pore diameter of 40.25 µm, or in the alternative,

It would have been obvious for one having ordinary skill in the art at the time the invention was made provide the spunbond material of table IV and figure 4 of SCHULTINK for the spunbond material of figure 8E of SCHULTINK, since it

has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. (MPEP 2144.07)

In a second alternative, it would have been obvious for one having ordinary skill in the art at the time the invention was made provide a nonwoven layer with a average pore size smaller than 50 μm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (MPEP 2144.05 PART II-A)

15. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) in view of CHAND (Structure and Properties of Polypropylene Fibers During Thermal Bonding) as evidence by WARD (Micro Denier Nonwoven Process and Fabrics), Webster's Third New International Dictionary, and ARNOLD (US 5,707,468).

For instant claim 1, SCHULTINK teaches at figure 8E a spunbond layer (i.e. nonwoven layer) (filter).

It is the Examiner's position that a spunbond layer inherently has a region and a surface area. For clarity, the Examiner is interpreting the region of the nonwoven layer as a portion of the spunbond layer of SCHULTINK. Therefore, the region has a surface area smaller than the filter (i.e. nonwoven layer).

Additionally for instant claim 1, SCHULTINK teaches at figure 8E a spunbond layer. Also, it is the Examiner's position that a spunbond layer has fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the layers is inhibited (i.e. the region has fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the region is inhibited).

[Also for arguendo, WARD (Micro Denier Nonwoven Process and Fabrics) provides extrinsic evidence at figure 3 of a 600 times magnification of a spunbond fabric which shows the fibers of the fabric bond together.]

[For clarity, Webster's Third New International Dictionary, Unabridged, 1993 provides extrinsic evidence that bond means a connection or system of connections in which adjacent parts of a structure are made to overlap so as to be tied or bound together, or bond means resistance to slipping (as between the major components of a structure) provided by adhesion or friction.]

[Furthermore for arguendo, ARNOLD (US 5,707,468) provides extrinsic evidence at column 4 lines 49-57 "Spunbond fabrics are generally lightly bonded in some manner immediately as they are produced in order to give them sufficient structural integrity to withstand the rigors of further processing into a finished product. This light, first step

bonding may be accomplished through the use of an adhesive applied to the fibers as a liquid or powder which may be heat activated, or more commonly, by compaction rolls."]

As well for instant claim 1, SCHULTINK teaches at table IV and figure 4 a spunbond layer (12). Additionally, the Applicant has stated on the record in the correspondence filed 28 January 2009 page 9 paragraph 2 that it is their position that SCHULTINK is describing properties of the laminate 6(36+35) at table IV. Therefore based on the position of the Applicant, SCHULTINK teaches at table IV and figure 4 the properties of the laminate 4/(12+11). For that reason, SCHULTINK teaches at table IV and figure 4 the maximum pore diameter for the spunbond layer (12) is 40.25 µm (i.e. the maximum pore diameter for the region is 40.25 µm).

It is the Examiner's position that inherently the average for a series of numbers must be less than or equal to the maximum value in that series. Therefore, inherently the average pore size (i.e. which is a result of a series of values of pore size) of the spunbond layer is less than or equal to 40.25 µm. Also, it is the Examiner's position that 40.25 µm is less than 50 µm.

Inherently for SCHULTINK, the spunbond material of table IV and figure 4 is the spunbond material of figure 8E; therefore the spunbond material of figure 8E has a maximum pore diameter of 40.25 µm, or in the alternative,

it would have been obvious for one having ordinary skill in the art at the time the invention was made provide the spunbond material of table IV and figure 4 of SCHULTINK for the spunbond material of figure 8E of SCHULTINK, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. (MPEP 2144.07)

In a second alternative, it would have been obvious for one having ordinary skill in the art at the time the invention was made provide the spunbond material of SCHULTINK with a average pore size smaller than 50 μm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (MPEP 2144.05 PART II-A)

Plus for instant claim 1, SCHULTINK teaches at figure 8E a spunbond layer (53) joined to a meltblown layer (55) with hotmelt (i.e. adhesive).

SCHULTINK does not specifically teach wherein the at least one region is a hot calendered region.

But, CHAND teaches at page 155 column 1 that thermal bonding is the most popular method of bonding used in nonwovens production, and thermal bonding has the advantage of cleanliness of the process. Additionally, CHAND teaches at page 155 column 1 the several types of thermal bonding such as area-bond calendering, and point-bond calendering.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the point-bond calendering of CHAND in substitute of the hotmelt joining the spunbond layer (53) and meltblown layer (55) of SCHULTINK for the benefit of cleanliness as taught by CHAND at page 155 column 1.

Thereby the claim phrase, "the at least one region is a hot calendered region," is met.

16. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) in view of CHAND (Structure and Properties of Polypropylene Fibers During Thermal Bonding) as evidence by WARD (Micro Denier Nonwoven Process and Fabrics), Webster's Third New International Dictionary, and ARNOLD (US 5,707,468) as applied to claim 1 above, and further in view of ANDO et al. (US 5,203,061) ("ANDO").

For instant claim 3, SCHULTINK teaches at figure 8E a spunbond layer (53) for a vacuum cleaner bag (i.e. filter bag).

Also, SCHULTINK teaches at table 6a that the spunbond layer (53) has a basis weight of 45 g/ m^2. Also, it is the Examiner's position that 45 g/ m^2 is within the claimed range of 10 and 100 g/ m^2.

Alternatively, SCHULTINK teaches at figure 4 that the spunbond layer has a basis weight between 10-40 g/ m^2. Also, it is the Examiner's position that 10-40 g/ m^2 is within the claimed range of 10 and 100 g/ m^2.

It would have been obvious to one having ordinary skill in the art at the time invention was made to simply substitute the spunbond material of table IV and figure 4 of SCHULTINK for the spunbond material of figure 8E of SCHULTINK because the substitution of one type of fabric for another that are both used for the same purpose (i.e. vacuum cleaner bag) would be well within the scope of the skilled artisan; or since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. (MPEP 2144.07) Also see KSR.

SCHULTINK does not specifically teach wherein the spunbond fibers have an average fineness of 0.6-12 denier.

But, ANDO teaches at column 3 lines 61 – 68 a spun bonded non-woven fabric. Also, ANDO teaches at column 3 lines 61-68 the mean (i.e. average) fineness of the fibers of the non-woven fabric is preferably 10 denier or less for appreciable dust trapping.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provide the technique of a mean (i.e. average) fineness of the fibers of the non-woven fabric is preferably 10 denier or

less of ANDO with the spunbond of the SCHULTINK, since ANDO teaches at column 3 lines 61-68 that such a modification provides the benefit of appreciable dust trapping.

17. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) as evidenced by WARD (Micro Denier Nonwoven Process and Fabrics), Webster's Third New International Dictionary, and ARNOLD (US 5,707,468) as applied to claims 4 and 5 above, and further in view of OHUE et al. (US 4,663,222 A).

For instant **claim 6**, OHUE et al. teaches at column 28 lines 20-60 the technique of applying the hotmelt at an amount of 10 g/m^2 to a filter device with non-woven fabric which is analogues to the device of SCHULTINK which teaches at figure 8H and title the technique of applying the hotmelt to a filter device with non-woven fabric (spunbond). One of ordinary skill in the art would have recognized that applying the hotmelt at an amount of 10 g/m^2 would have yielded the predictable result of providing sufficient hotmelt for the bonding of layers of the filter together as described by OHUE et al. at column 28 lines 20-60. The claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in the art.

Also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the amount of hotmelt be slightly less

than 10g/m^2 thereby being between 1 and 10g/m^2, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (MPEP 2144.05 PART II-A).

18. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over van ROSSEN (WO 93/21812) in view of JOHNSON et al. (US 4,877,526) ("JOHNSON"), ANDO et al. (US 5,203,061) ("ANDO"), CHAND (Structure and Properties of Polypropylene Fibers during Thermal Bonding), and ARNOLD (US 5,707,468) as evidenced by WARD (Micro Denier Nonwoven Process and Fabrics), and Webster's Third New International Dictionary.

For instant claims 1 and 3, van ROSSEN teaches at page 9 lines 19-20 a protective layer insert (38) which is spunbonded.

Also, van ROSSEN teaches at page 9 lines 5-18 a laminate used for the filter bag (28).

As well, van ROSSEN teaches at the figures the protective layer insert (38) (region) has a surface area smaller than the filter (28).

Additionally, van ROSSEN teaches at page 8 lines 22-23 that the protective layer (38) is welded at the edges (36).

Additionally for instant claims 1 and 3 and arguendo, it is the Examiner's position that a spunbond layer (38) of van ROSSEN intrinsically comprises fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the layers is inhibited.

[WARD (Micro Denier Nonwoven Process and Fabrics) provides extrinsic evidence at figure 3 of a 600 times magnification of a spunbond fabric which shows the fibers of the fabric bond together.]

[For clarity, Webster's Third New International Dictionary, Unabridged, 1993 provides extrinsic evidence that bond means a connection or system of connections in which adjacent parts of a structure are made to overlap so as to be tied or bound together, or bond means resistance to slipping (as between the major components of a structure) provided by adhesion or friction.]

As well for instant claims 1 and 3, van ROSSEN teaches at page 9 lines 19-20 a protective layer insert (38) which is spunbonded.

It is the Examiner's position that the spunbonded of van ROSSEN has a basis weight, the fibers an average fineness of denier, with an average pore size.

van ROSSEN does not specifically teach wherein the spunbond nonwoven layer having a basis weight between 10 and 100 g/m^2 and wherein the

spunbond fibers have an average fineness of 0.6-12 denier, with an average pore size smaller than 50 μm.

But, JOHNSON teaches column 5 lines 37-43 a filter bag with a spunbond, pin-bonded polypropylene fabric having a basis weight of approximately 34 g/m^2, and an equivalent pore size of about 20 μm.

It would have been obvious to one having ordinary skill in the art at the time invention was made to simply substitute the spunbond layer of van ROSSEN with the spunbond layer of JOHNSON because the substitution of one type of fabric for another that are both used for the same purpose (i.e. filter bag) would be well within the scope of the skilled artisan. Also see KSR.

Furthermore and intrinsically, the equivalent pore size of about 20 μm of the spunbond of JOHNSON is smaller than an average pore size of 50 μm, or in the alternative it would have been obvious to one having ordinary skill in the art at the time the invention was made to have an average pore size of 50 μm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (MPEP 2144.05 PART II-A)

Furthermore in relation to the van ROSSEN and JOHNSON combination, JOHNSON does not specifically teach wherein the spunbond fibers have a an average fineness of 0.6-12 denier.

But, ANDO teaches at column 3 lines 61 – 68 a spun bonded non-woven fabric. Also, ANDO teaches at column 3 lines 61-68 the mean (i.e. average)

fineness of the fibers of the non-woven fabric is preferably 10 denier or less for appreciable dust trapping.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provide the technique of a mean (i.e. average) fineness of the fibers of the non-woven fabric is preferably 10 denier or less of ANDO with the spunbond of the van ROSSEN and JOHNSON et al. combination, since ANDO teaches at column 3 lines 61-68 that such a modification provides the benefit of appreciable dust trapping.

Also, it is the Examiner's position that the range of 10 denier or less overlaps the claimed range of 0.6-12 denier.

Plus for instant claims 1 and 3, ARNOLD (US 5,707,468) states at column 4 lines 49-57 "Spunbond fabrics are generally lightly bonded in some manner immediately as they are produced in order to give them sufficient structural integrity to withstand the rigors of further processing into a finished product. This light, first step bonding may be accomplished through the use of an adhesive applied to the fibers as a liquid or powder which may be heat activated, or more commonly, by compaction rolls."

Also, CHAND teaches at page 155 column 1 that thermal bonding is the most popular method of bonding used in nonwovens production, and thermal bonding as the advantage of the cleanliness of the process. Additionally, CHAND

teaches at page 155 column 1 the several types of thermal bonding such as area-bond calendering, and point-bond calendering (i.e. hot calendered).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the point-bond calendering (i.e. hot calendering) of CHAND to the spunbond of the van ROSSEN and JOHNSON et al. combination, since ARNOLD states at column 4 lines 49-57 "Spunbond fabrics are generally lightly bonded in some manner immediately as they are produced in order to give them sufficient structural integrity."

[For arguendo, it is noted that JOHNSON et al. teaches column 5 lines 37-43 a filter bag with a spunbond, **pin-bonded** polypropylene fabric. (bolding added for emphasis)]

19. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) as evidence by WARD (Micro Denier Nonwoven Process and Fabrics), Webster's Third New International Dictionary, ARNOLD (US 5,707,468) and DIEHL et al. (US 6,425,978 B1).

For instant claim 11, SCHULTINK teaches at figure 8E a spunbond layer for a vacuum cleaner bag and the spunbond layer with a region treated with hotmelt (i.e. a treated region of the nonwoven layer filter).

It is the Examiner's position that a spunbond layer inherently has a region and a surface area. For clarity, the Examiner is interpreting the region of the

nonwoven layer as a portion of the spunbond layer of SCHULTINK. Therefore, the region has a surface area smaller than the filter (i.e. nonwoven layer).

As well the phrase, "such that the treated region has an average pore size smaller than 50 μm" is noted. Also, SCHULTINK teaches at table IV and figure 4 a spunbond layer (12). Additionally, the Applicant has stated on the record in the correspondence filed 28 January 2009 page 9 paragraph 2 that it is there position that SCHULTINK is describing parameters of the laminate 6(36+35) at table IV. Therefore based on the position of the Applicant, SCHULTINK teaches at table IV and figure 4 the properties of the laminate 4/(12+11). For that reason, SCHULTINK teaches at table IV and figure 4 the maximum pore diameter for the spunbond layer (12) is 40.25 μm.

It is the Examiner's position that inherently the average for a series of numbers must be less than or equal to the maximum value in that series. Therefore, intrinsically the average pore size (i.e. which is a result of a series of values of pore size) of the spunbond layer is less than or equal to 40.25 μm. Also, it is the Examiner's position that 40.25 μm is less than 50 μm.

It would have been obvious for one having ordinary skill in the art at the time the invention was made provide the spunbond material of table IV and figure 4 of SCHULTINK for the spunbond material of figure 8E of SCHULTINK, since it has been held to be within the general skill of a worker in the art to select a

known material on the basis of its suitability for the intended use as a matter of obvious design choice. (MPEP 2144.07)

In the alternative, it would have been obvious for one having ordinary skill in the art at the time the invention was made provide the spunbond material of figure 8E of SCHULTINK with an average pore size smaller than 50 µm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (MPEP 2144.05 PART II-A)

Thereby the claim phrase, "such that the treated region has an average pore size smaller than 50 µm," is met.

For instant claim 11, SCHULTINK teaches at figure 8E a spunbond layer. Also, it is the Examiner's position that a spunbond layer comprises fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the layers is inhibited.

[WARD (Micro Denier Nonwoven Process and Fabrics) provides extrinsic evidence at figure 3 of a 600 times magnification of a spunbond fabric which shows the fibers of the fabric bond together.]

[For clarity, Webster's Third New International Dictionary, Unabridged, Copyright 1993 provides extrinsic evidence that bond means a connection or system of connections in which adjacent parts of a

structure are made to overlap so as to be tied or bound together, or bond means resistance to slipping (as between the major components of a structure) provided by adhesion or friction.]

[Furthermore, ARNOLD (US 5,707,468) provides extrinsic evidence at column 4 lines 49-57 "Spunbond fabrics are generally lightly bonded in some manner immediately as they are produced in order to give them sufficient structural integrity to withstand the rigors of further processing into a finished product. This light, first step bonding may be accomplished through the use of an adhesive applied to the fibers as a liquid or powder which may be heat activated, or more commonly, by compaction rolls."]

Thereby, the claim phrase, "such that the fibers are bonded together and a movement of the fibers relative to each other in a direction parallel to the surface of the region is inhibited," is met.

As well for instant claim 11, SCHULTINK does not specifically teach wherein the treating step comprises spraying dry-bond adhesive. But, SCHULTINK teaches at figure 8E a region of the spunbond layer (i.e. nonwoven layer) (53) treated with hotmelt, and attached to a meltblown layer (55). As well, SCHULTINK teaches at paragraph 34 a technique of spraying latex binder (i.e. dry-bond adhesive) to dry-laid capacity paper webs and squeezing (i.e. applying pressure) the webs to obtain a bonding of the webs (i.e. fibers).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to simply substitute the hotmelt of SCHULTINK with latex binder of SCHULTINK, and provide the technique of bonding webs (i.e. fibers) for the benefit of bonding the spunbond layer (53), and the meltblown layer (55).

[DIEHL et al. (US 6425978 B1) provides extrinsic evidence at the title of a latex binder for nonwoven fibers and article made therewith.]

Thereby, the claim phrase, "the treating step comprises the steps of: spraying of hotmelt, cold glue, dry-bond adhesive, thermoplastic polymer, or mixtures thereof, and applying pressure to obtain a bonding of the fibers in the treated region," is met.

20. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) in view of ARNOLD (US 5,707,468) and CHAND (Structure and Properties of Polypropylene Fibers during Thermal Bonding) as evidence by WARD (Micro Denier Nonwoven Process and Fabrics), and Webster's Third New International Dictionary.

For instant claim 12, SCHULTINK teaches at figure 8E a spunbond layer for a vacuum cleaner bag (i.e. nonwoven layer).

It is the Examiner's position that a spunbond layer inherently has a region and a surface area. For clarity, the Examiner is interpreting the region of the

nonwoven layer as a portion of the spunbond layer of SCHULTINK. Therefore, the region has a surface area smaller than the filter (i.e. nonwoven layer).

As well for instant claim 12, SCHULTINK teaches at table IV and figure 4 that a spunbond layer (12). Additionally, the Applicant has stated on the record in the correspondence filed 28 January 2009 page 9 paragraph 2 that it is there position that SCHULTINK is describing parameters of the laminate 6(36+35) at table IV. Therefore based on the position of the Applicant, SCHULTINK teaches at table IV and figure 4 the properties of the laminate 4/(12+11). For that reason, SCHULTINK teaches at table IV and figure 4 the maximum pore diameter for the spunbond layer (12) is 40.25 µm.

It is the Examiner's position that inherently the average for a series of numbers must be less than or equal to the maximum value in that series. Therefore, intrinsically the average pore size (i.e. which is a result of a series of values of pore size) of the spunbond layer is less than or equal to 40.25 µm. Also, it is the Examiner's position that 40.25 µm is less than 50 µm.

It would have been obvious for one having ordinary skill in the art at the time the invention was made to provide the spunbond material of table IV and figure 4 of SCHULTINK for the spunbond material of figure 8E of SCHULTINK, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. (MPEP 2144.07)

In the alternative, it would have been obvious for one having ordinary skill in the art at the time the invention was made provide the spunbond material of figure 8E of SCHULTINK with an average pore size smaller than 50 µm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (MPEP 2144.05 PART II-A)

For instant claim 12, SCHULTINK teaches at figure 8E a spunbond layer. Also, it is the Examiner's position that a spunbond layer comprises fibers being bonded together such that a movement of the fibers relative to each other in a direction parallel to a surface of the layers is inhibited.

[WARD (Micro Denier Nonwoven Process and Fabrics) provides extrinsic evidence at figure 3 of a 600 times magnification of a spunbond fabric which shows the fibers of the fabric bond together.]

[For clarity, Webster's Third New International Dictionary, Unabridged, Copyright 1993 provides extrinsic evidence that bond means a connection or system of connections in which adjacent parts of a structure are made to overlap so as to be tied or bound together, or bond means resistance to slipping (as between the major components of a structure) provided by adhesion or friction.]

As well for instant claim 12, SCHULTINK does not specifically teach wherein the treating step comprises the step of hot calendering. But, SCHULTINK teaches at figure 8E a spunbond layer.

ARNOLD (US 5,707,468) states at column 4 lines 49-57 "Spunbond fabrics are generally lightly bonded in some manner immediately as they are produced in order to give them sufficient structural integrity to withstand the rigors of further processing into a finished product. This light, first step bonding may be accomplished through the use of an adhesive applied to the fibers as a liquid or powder which may be heat activated, or more commonly, by compaction rolls."

Also, CHAND teaches at page 155 column 1 that thermal bonding is the most popular method of bonding used in nonwovens production, and thermal bonding as the advantage of the cleanliness of the process. Additionally, CHAND teaches at page 155 column 1 the several types of thermal bonding such as area-bond calendering, and point-bond calendering.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the point-bond calendering of CHAND to the spunbond of SCHULTINK, since ARNOLD states at column 4 lines 49-57 "Spunbond fabrics are generally lightly bonded in some manner immediately as they are produced in order to give them sufficient structural integrity."

21. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) as evidenced by WARD (Micro Denier Nonwoven Process and Fabrics), Webster's Third New International Dictionary, and ARNOLD (US 5,707,468) as applied to claim 4 and 5, and further in view of LUTZ et al. (Polypropylene: An A-Z Reference) ("LUTZ").

For instant claim 26, SCHULTINK does teach at page 3 lines 37-43 and figure 8H, wherein the adhesive is a hot melt. LUTZ teaches at page 301 and 303, that pulverized polymer is an alternative to hot melt for adhesion of fibers (nonwoven material). One of ordinary skill in the pertinent art would considered it obvious to substitute the hot melt used by SCHULTINK for the equivalent pulverized polymer to yield the predictable result of adhering fibers (nonwoven material).

22. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHULTINK (EP 960645A2) as evidence by WARD (Micro Denier Nonwoven Process and Fabrics), Webster's Third New International Dictionary, ARNOLD (US 5,707,468) and DIEHL et al. (US 6425978 B1) as applied to claim 11, and further in view of LUTZ et al. (Polypropylene: An A-Z Reference) ("LUTZ").

For instant claim 27, SCHULTINK does teach at page 3 lines 37-43 and figure 8H, wherein the adhesive is a hot melt. LUTZ et al. teaches at page 301

and 303, that pulverized polymer is an alternative to hot melt for adhesion of fibers (nonwoven material). One of ordinary skill in the pertinent art would considered it obvious to substitute the hot melt used by SCHULTINK for the equivalent pulverized polymer to yield the predictable result of adhering fibers (nonwoven material).

Response to Arguments

23. Applicant's arguments filed 15 June 2010 have been fully considered but they are not persuasive.

24. In response to applicant's argument at section IV-A that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

25. In response to applicant's argument at section IV-B that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

26. In response to applicant's argument at section IV-C that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

27. In response to applicant's argument at section IV-D that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

28. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

29. In response to applicant's argument at section IV-E that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

30. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

31. Applicant argues at section IV-E that, "The Examiner's reliance on six separate references suggests that the Examiner is relying upon hindsight, having knowledge of the Applicant's own disclosure."

a. Respectively, the Examiner does not find this argument persuasive.

MPEP 2145 PART V states…

Reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. In re Gorman, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991) (Court affirmed a rejection of a detailed claim to a candy sucker shaped like a thumb on a stick based on thirteen prior art references.).

b. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

32. In response to applicant's argument at section IV-F that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

33. In response to applicant's argument at section IV-G that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

34. In response to applicant's argument at section IV-H that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

35. In response to applicant's argument at section IV-I that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

36. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

37. In response to applicant's argument at section IV-J that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

38. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

39. In response to applicant's argument at section IV-K that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

40. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

41. In response to applicant's argument at section IV-L that the prior art does not disclose the new claim limitations the Applicant is invited to review the above rejections directed to the new claim limitations.

42. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

43. It is noted that the Applicant is paraphrasing the Examiner at sections IV-B, IV-C, and IV-E and they are not correct quotes of the Examiner.

Conclusion

44. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY SHUMATE whose telephone number is (571)270-5546. The examiner can normally be reached on M-Th 9-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Marcheschi can be reached on (571)272-1374. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. S./
Examiner, Art Unit 1797

/Jason M. Greene/
Primary Examiner, Art Unit 1797